Neal Smith National Wildlife Refuge

School visits to the Prairie Learning Center (PLC):

Mission: Study Neal Smith NWR and use the Iowa prairie ecosystem as an integrating and motivating context in each related curricular area to engage school children at all grade levels in real world, field-based learning experiences.

Goals:

All student visits and developing school partnerships will include:

1. A search for *wonder*
2. Nature journals
3. A place-based curriculum, focused on studying the land and wildlife at Neal Smith NWR, while highlighting global connections when appropriate
4. Integrated Phenology study, tracking changes overtime
5. Studying and modeling past and present naturalists (e.g. Rachel Carson, Aldo Leopold, Byrd Baylor, Ernest Seton, Lewis and Clark) as a pathway to exploration
6. Inviting all school children, teachers, and chaperones to become naturalists, or people who always ask wonder questions and make discoveries about the environment
7. Developing the skills of critical thinking, problem solving, teamwork, stewardship, and citizenship
8. Connecting 1st American and early settlement history when appropriate

Guiding principles:

- The main subject of any school group visit to PLC should be the tallgrass prairie ecosystem. The prairie and the life in it should be the main focus of all activities.
- A minimum of materials and objects will be required for all activities; realizing that materials and equipment distract from field study.
- This document and enclosed lessons should be continually reviewed and adapted as Neal Smith NWR and environmental education evolve.

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Fall Units

"The winds will blow their own freshness into you,
and the storms their energy,
while cares will drop away from you
like the leaves of Autumn."
- John Muir

Grade 5:

1. Favorites of the Prairie :

   Objective: Students search for their personal "favorites" on the prairie and record them in their nature journals.

   Students listen to a story by Byrd Baylor called Guess Who My Favorite Person Is. The field leader explains that students will have the opportunity to play the "favorites game" by going outside and recording their prairie "favorites" into their nature journal. First, students determine which kinds of favorites they would like to search for outside (e.g. animal, plant, shape, touch, feeling). Then, students search for their favorites in the prairie and record them. Students use their nature journals to share their favorites with each other. Students discuss how finding daily favorites could make them better naturalists and whether they could find a favorite at home, school, or anywhere else each day.

2. Catch and Release Insects:

   Objective: Students make predictions, observe, and record discoveries of insect groups found within various prairie plant communities.

   A field leader uses Neal Smith insect ID sheet and short power-point presentation to introduce students to the definition of insects and different insect groups. Afterwards, students work in groups to generate questions about prairie insects and create data collection sheets in their nature journals. In the field, students use bug-boxes to collect, observe, and record data about insects. In their groups, students work to classify the insects into appropriate insect groups (e.g. Hemiptera, Homoptera, Lepidoptera, Coleoptera, Hymenoptera, Diptera). Students must release insects back into the prairie. Lastly, students share their results and comment about any findings that surprised them.

3. Hoopin' It Up in the Prairie:

   Objective: Students conduct a basic habitat investigation based on questions of their own.

   During this investigation, students are divided into groups and each group is provided with a hula-hoop and plant and insect field sheets. The field leader has an open discussion about the definition of habitat and which types of plants and animals students could/should expect to find within a prairie habitat. Next, students generate investigative habitat questions. Each group chooses one inquiry question to work on while outside. In the prairie, each group randomly tosses their hula-hoop into the prairie. Each group must follow their hula-hoop and work to find the answer to their habitat question. Students must also sketch and describe the habitat found within their hula-hoop. Later, students share their findings and make suggestions about how they would change or improve their investigation for next time.

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Spring Units

"We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect." – Aldo Leopold

Fifth Grade:

1. **A Sense of Wonder**

   Objective: Students use their nature journal and senses to search for wonder and record their discoveries through sketches and writing.

   A field leader reads passages from Rachel Carson's book A Sense of Wonder. The class discusses the meaning of some of Rachel's quotes and the word "wonder". Why does Carson believe that wonder is important? A field leader explains that there are two meanings of the word wonder- to ask a question and to be in awe. Students record a T-chart in their nature journal with the left side labeled "Wonder-Question" and the other side "Wonder-Awe". Then students go outside and search for the two types of "wonder" and write about it in their journals while sitting quietly. To conclude the lesson, students share their feelings and observations about moments of wonder that they experienced in the prairie.

2. **Discovering Diversity**

   Objective: Students make predictions, observe, and record discoveries of insect groups found within various plant communities.

   During this investigation, students conduct small transects with sweep nets in two pre-selected plant communities. One of the communities is a disturbed habitat and the other is a restored prairie. They observe, collect, and record the number of different types of prairie insects they find at each location. Inside, the field leader uses a Venn diagram to compile a class set of data. One side of the Venn diagram is labeled "Location 1" and the other is labeled "Location 2". Students share their findings of insect diversity from each location, as the field leader records these into the appropriate category. Students speculate what types of environmental factors or variables contributed to the patterns in the diversity of prairie insects. From their evidence, students work to draw a conclusion about how plant communities might affect prairie insect life.

3. **Prairie Birthdays:**

   Objective: Students generate questions about prairie plants and conduct a basic plant investigation to answer them.

   Students listen to an excerpt called "Prairie Birthdays" from Aldo Leopold's book A Sand County Almanac. Based on their prior knowledge about plants, students generate questions and design journal entries to use for recording prairie birthdays. Students head into the field to search for answers about blooming prairie plants and choose one plant to sketch and describe it in honor of its birthday. Students should make notes about the parts of a plant, including careful details about the flowers and its part and purpose. This lesson concludes by having students share their findings and discussing the importance of tracking and celebrating the life of prairie plants.